The listing of claims will replace all prior versions, and listings, of claims in the application:

Listing of Claims:

1. (Currently amended) A method for analyzing injured tissue and evaluating quality of repaired tissue based on quantized magnetic resonance data using an MRI measurement acquisition system comprising the steps of:

a) selecting at least one magnetic resonance parameter to characterize injured tissue,

b) selecting a suitable pulse sequence to calculate and quantify that selected magnetic resonance parameter,

c) using the selected pulse sequence, acquiring multiple sets of magnetic resonance signals from the injured tissue at an unchanged position relative to the measurement acquisition system,

d) calculating and **numerically** quantifying the magnetic resonance parameters on a pixel by pixel basis,

e) determining biological properties of interest of repaired tissue structure by biological means including at least one of histological, biochemical, histochemical, and biomechanical, and

f) correlating quantitative ranges of the selected magnetic resonance parameters with selected biological properties of interest to determine extent of injury or state of tissue repair.

2. (Original) The method as defined by claim 1 wherein in step a) the magnetic resonance parameter is selected from longitudinal relaxation time (T_1), transverse relaxation time (T_2), magnetization transfer (MT), and magnetization ratio (MR).

3. (Original) The method as defined by claim 2 wherein the tissue is cartilage.

4. (Previously presented) The method as defined by claim 3 and further including the step of:

g) creating a color image of the tissue based on representation of sets of one or more quantitative magnetic resonance parameters.

5. (Previously presented) The method as defined by claim 1 and further including the step of:

g) creating a color image based on representation of sets of one or more quantitative magnetic resonance parameters.

6. (Currently amended) A method for analyzing injured tissue and evaluating quality of repaired tissue based on quantized magnetic resonance data comprising the steps of:

a) acquiring magnetic resonance signals from the injured tissue,

b) determining at least one magnetic resonance quality of the injured tissue in each pixel,

c) calculating and **numerically** quantifying the magnetic resonance quality from the magnetic resonance signals pixel by pixel within the injured tissue, and

d) correlating the determined magnetic resonance quality with known magnetic resonance qualities of repaired tissue to determine extent of injury or state of tissue repair.

7. (Original) The method as defined by claim 6 wherein in step c) the magnetic resonance quality is selected from longitudinal relaxation time (T_1), transverse relaxation time (T_2), magnetization transfer (MT), and magnetization ratio (MR).

8. (Original) The method as defined by claim 7 wherein the tissue is cartilage.

9. (Previously presented) The method as defined by claim 8 and further including the step of:

e) creating a color image of the tissue based on the determined magnetic resonance quality.

10. (Previously presented) The method as defined by claim 6 and further including the step of:

e) creating a color image of the tissue based on the determined magnetic resonance quality.

11. - 17. (Cancelled)